

REMARKS

Claim 3 has been cancelled and the limitations thereof have been incorporated into claim 1 and 6. New claim 7 has been added and is somewhat similar to claim 1. Claims 1-2 and 6-7 are pending and under consideration.

I. REJECTION OF CLAIMS 1-3 AND 6 UNDER 35 U.S.C. § 103(a) AS BEING UNPATENTABLE OVER KOBAYASHI ET AL. (U.S. PATENT NO. 5,892,515; HEREINAFTER KOBAYASHI) IN VIEW OF CLINE ET AL. (U.S. PATENT NO. 6,204,853; HEREINAFTER "CLINE") AND FURTHER IN VIEW OF THE APPLICANTS ADMITTED PRIOR ART (HEREINAFTER "APA"):

Claim 1 of the present invention recites "an edge detecting unit which detects an edge of said three-dimensional model...a smoothing unit which smoothes said edge and transforming said edge into a curved surface having a predetermined radius of curvature...an analyzing unit which analyzes said three-dimensional model in accordance with a finite element method after said edge is smoothed by said smoothing unit and after dividing the three-dimensional model into a plurality of hexahedral elements which are formed with edges each having a length shorter than a predetermined radius of curvature...".

At page 5 of the Office Action, the Examiner admits that Kobayashi fails to disclose the Applicants' "smoothing unit". However, the Examiner asserts that Cline discloses this feature.

Specifically, the Examiner asserts that in FIG. 4 of Cline, the noise reduction filter 27 illustrates a step of smoothing detected edges. However, Cline discloses the filter smoothing noise in a direction along an edge without blurring across an edge (see Abstract). That is, the edge remains the same but the noise is smoothed. Therefore, Cline teaches away from the present invention.

Further, at page 5 of the Office Action, the Examiner asserts that Kobayashi discloses in FIGS. 5, 6 and 10 "the length of the line segments of the mapping model correspond to a radius of curvature and is longer than the length of the hexahedral elements.

As mentioned above, the Examiner admits that Kobayashi fails to disclose the Applicants "smoothing unit". Therefore, the Applicants respectfully submit that Kobayashi fails to disclose "edges each having a length shorter than said predetermined radius of curvature," as recited in claim 1.

Further, at page 6 of the Office Action, the Examiner admits that neither Kobayashi nor Cline disclose "said analyzing unit determines a converged value of a physical quantity based on a local maximum of calculated values of said physical quantity which are obtained while

increasing the number of said plurality of hexahedral elements by said number-of-divisions varying unit," as recited in claim 1. Thus, the Examiner asserts that it would be obvious in light of the method disclosed in the APA.

Specifically, at page 6, the Examiner asserts that FIG. 10 of the present invention illustrates the local maximum of the calculated values occurs at the largest number of divisions and that the number of divisions is not infinite and therefore, the maximum value is local to the number of divisions analyzed.

However, the Applicants respectfully submit that by mathematical definition, "a point x^* is a local maximum of a function f if there exists some $\varepsilon > 0$ such that $f(x^*) \geq f(x)$ for all x with $|x - x^*| < \varepsilon$. In the APA (see FIG. 10 of the present invention), when using a conventional algorithm, the calculated values exhibit a monotonous increase as the number of divisions increases. The calculated value of the present invention does not monotonously increase with the number of divisions (see FIG. 11 of the present invention). Instead, the calculated values of the present invention has a local maximum (see page 15 of the specification).

Further, neither Kobayashi nor Cline, individually or combined disclose "dividing the three-dimensional model into a plurality of hexahedral elements which are formed with edges each having a length shorter than said predetermined radius of curvature," as mentioned above. Therefore, the combination of Kobayashi, Cline and the APA fails to establish a prima facie case of obviousness over the present invention.

Claim 6 recites limitations somewhat similar to claim 1.

II. CONCLUSION:

In view of the foregoing amendments and remarks, it is respectfully submitted that each of the claims patentably distinguishes over the prior art, and therefore, defines allowable subject matter. A prompt and favorable reconsideration of the rejection along with an indication of allowability of all pending claims are therefore respectfully requested.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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